## CLAIMS

1. A mesh access network, comprising:

at least one base-station comprising a plurality of sectors;

each sector comprising of a plurality of terminal nodes, said terminal nodes comprising both indoor terminal nodes and outdoor terminal nodes, and comprising a plurality of outdoor repeaters;

wherein said nodes in each sector are arranged in a tree structure starting from said base-station;

wherein said base-station sectors use different frequency bands that are located in alternate sectors of said base-station; and

a module for interference management and sector reuse comprising network *management of frequency, time, and directionality.*

2. The network of Claim 1, comprising:

at least one Base-Station → Level1-repeaters link; and

at least one Repeater → Repeater/Terminal or Base-station → Terminal link.

3. The network of Claim 2, wherein said Base-Station → Level1-repeaters link can be active in all sectors in all cells simultaneously due to of transmitter and receiver antenna directionality;

wherein a predetermined percentage of all time-slots are preferably reserved for Base-Station → Level1-repeaters links.

4. The network of Claim 2, wherein said in-sector Repeater → Repeater/Terminal or Base-station → Terminal link is active only in an assigned time-slot;

wherein said repeaters distribute data packets to/from terminals in said time-slots by scheduling non-interfering links to transmit at a same time.

5. The network of Claim 1, wherein a sector of each base-station having a first frequency band is at least a cell radius away from another sector having said first frequency band.

6. The network of Claim 1, wherein sectors with a same carrier and time-slot assignment are located a cell radius away from each other.

7. The network of Claim 1, wherein communication with nodes in a sector that cannot communicate directly with said base-station is done through a first set of repeaters in a sector;

wherein data packets from said base-station to a node are switched to said node through multiple hops; and

wherein data packets from a node are transmitted through multiple hops to said base-station.

8. The network of Claim 1, wherein capacity of a base-station is increased by adding more carriers.

9. The network of Claim 7, wherein carriers are added sector by sector;

wherein a different base-station radio is provided for each sector for each carrier.

10. The network of Claim 9, wherein at least a second set of first level repeaters is provided to communicate with said base-station on different carriers at the same time.

11. The network of Claim 9, wherein other nodes in each sector must switch to different carriers for in-sector time-slots.

12. The network of Claim 1, wherein each sector in said network represents a tree structure rooted at said base-station.

13. The network of Claim 1, further comprising:

a plurality of links that use any of two types of time-slots for communication, wherein said time slots comprise long time slots and short time slots.

14. The network of Claim 13, wherein long time-slots are spectrally efficient and are adapted to transmit a large number of bytes in each time-slot.

15. The network of Claim 14, wherein said base-station communicates with level-1 repeaters (R1) using long time-slots, wherein said time-slots carry substantially all packets in said network destined to/from repeaters and terminals connected thereto.

16. The network of Claim 13, wherein short time-slots have about 20% the capacity and 25% the duration of the long time-slots.

17. The network of Claim 16, wherein substantially all Repeater → Repeater/Terminal and Base-station → Terminal links use short time-slots.

18. The network of Claim 16, wherein short time-slots are time-multiplexed to maximize utilization of spectrum and reduce latency.